

CLAIMS

What is claimed is:

1 1. A method for receiving asynchronous transfer mode (ATM) cells in a host
2 from a client over a bus, comprising the steps of:

3 determining whether an ATM cell in said client is ready to be transferred over
4 said bus to a storage device within said host; and

5 preventing overflow of said storage device by calculating a first available cell
6 space in said storage device as a function of a write value, a read value image and a
7 size value of said storage device.

1 2. The method of claim 1 further comprising the step of transferring an ATM cell
2 from said client to said storage device.

1 3. The method of claim 1 further comprising the step of updating said read value
2 image.

1 4. The method of claim 3, wherein said read value image updating is executed
2 upon said first available cell space falling below a programmable level.

1 5. The method of claim 1, wherein underflow of said storage device is prevented
2 by calculating a second available cell space in said storage device as a function of a read
3 value, a write value image and a size value of said storage device.

1 6. The method of claim 5 further comprising the step of updating said write value
2 image.

1 7. The method of claim 6, wherein said write value image updating is executed
2 upon reaching a programmable number of transferred ATM cells.

1 8. The method of claim 1, wherein said write value and read value image are
2 specified by pointers associated with a storage device within said client.

1 9. The method of claim 5, wherein said read value and write value image are
2 specified by pointers associated with said storage device.

1 10. A method for transmitting asynchronous transfer mode (ATM) cells from a
2 host to a client over a bus, comprising the steps of:

3 determining whether an ATM cell in a storage device within said host is ready
4 to be transferred over said bus to said client; and

5 preventing overflow of said storage device by calculating a first available cell
6 space in said storage device as a function of a write value, a read value image and a
7 size value of said storage device.

1 11. The method of claim 10 further comprising the step of transferring an
2 ATM cell from said storage device to said client.

1 12. The method of claim 10 further comprising the step of updating said read
2 value image.

1 13. The method of claim 12, wherein said read value image updating is executed
2 upon reaching a programmable number of transferred ATM cells.

1 14. The method of claim 10, wherein underflow of said storage device is
2 prevented by calculating a second available cell space in said storage device as a function of a
3 read value, a write value image and a size value of said storage device.

1 15. The method of claim 14 further comprising the step of updating said write
2 value image.

1 16. The method of claim 10, wherein said write value and read value image are
2 specified by pointers associated with said storage device.

1 17. The method of claim 15, wherein said write value image updating is executed
2 upon falling under a programmable level of said second available cell space.

1 18. The method of claim 14, wherein said read value and write value image are
2 specified by pointers associated with a storage device within said client.

1 19. A system for receiving asynchronous transfer mode (ATM) cells over a bus,
2 comprising:

3 a host comprising a receiver data sink for storing ATM cells to be received,
4 and a computer program for preventing overflow of said receiver data sink by
5 calculating a first available cell space of said receiver data sink as a function of a read
6 value, a write value image and a size value of said receiver data sink; and

7 a client comprising a receiver data source for storing ATM cells to be
8 transferred, and a finite state machine for calculating a second available cell space of
9 said receiver data sink as a function of a write value, a read value image and a size
10 value of said receiver data sink in order to prevent underflow of said receiver data
11 source.

1 20. The apparatus of claim 19, wherein said read value image is updated upon said
2 second available cell space falling below a programmable level.

1 21. The apparatus of claim 20, whereby said updating is controlled and initiated by
2 said host.

1 22. The apparatus of claim 19, wherein said write value image is updated upon
2 reaching a programmable number of transferred ATM cells.

1 23. The apparatus of claim 22, whereby said updating is controlled and initiated
2 by said host.

1 24. The apparatus of claim 19, wherein said write value and read value image are
2 specified by pointers associated with said receiver data source and said read value and write
3 value image are specified by pointers associated with said receiver data sink.

1 25. The apparatus of claim 19, wherein said receiver data sink is a ring buffer and
2 said receiver data source is a FIFO memory.

1 26. The apparatus of claim 19, wherein said bus is a PCI bus.

1 27. An apparatus for transmitting asynchronous transfer mode (ATM) cells over a
2 bus, comprising:

3 a host comprising a transmitter data source for storing ATM cells to be
4 transferred, and a computer program for preventing overflow of said transmitter data
5 source by calculating a first available cell space of said transmitter data source as a
6 function of a write value, a read value image and a size value of said transmitter data
7 source; and

8 a client comprising a transmitter data sink for storing ATM cells to be
9 received, and a finite state machine for calculating a second available cell space of
10 said transmitter data source as a function of a read value, a write value image and a
11 size value of said transmitter data source in order to prevent underflow of said
12 transmitter data source.

1 28. The apparatus of claim 27, wherein said read value image is updated upon
2 reaching a programmable number of transferred ATM cells.

1 29. The apparatus of claim 28, whereby said updating is controlled and initiated
2 by said host.

1 30. The apparatus of claim 27, wherein said write value image is updated upon
2 falling said second available cell space below a programmable level.

1 31. The apparatus of claim 30, whereby said updating is controlled and initiated
2 by said host.

1 32. The apparatus of claim 27, wherein said write value and read value image are
2 specified by pointers associated with said transmitter data source and said read value and
3 write value image are specified by pointers associated with said transmitter data sink.

1 33. The apparatus of claim 27, wherein said transmitter data source is a ring buffer
2 and said transmitter data sink is a FIFO memory.

1 34. The apparatus of claim 27, wherein said bus is a PCI bus.